

**APPENDIX A**  
**(Clean Copy Of Amended Claims)**

---

65. (New) A speed-controlled dynamo-electric compound system, comprising:

at least one primary dynamo-electric unit arranged to rotate a shaft;

at least one centrifugal clutch having a driven side connected to the shaft and a driving side connected to an engine, wherein rotation of said dynamo-electric unit at a preset speed causes said driven side of the clutch to engage said driving side and thereby connect said engine to said shaft;

a load connected to said shaft through an output device;

a secondary dynamo-electric unit coupled to said engine;

an electrical energy storage device connected between said secondary dynamo-electric unit and said primary dynamo-electric unit; and

a controller,

wherein when said primary dynamo-electric unit is supplied with electricity from said electrical energy storage device and caused to rotate at below said preset speed, said dynamo-electric device drives said shaft to selectively drive said output device, and when said primary dynamo-electric unit is caused to rotate at above said preset speed, said driven side of said centrifugal clutch engages said driving side, thereby connecting said engine to said primary dynamo-electric unit to carry out at least one of the following functions:

- (1) the primary dynamo-electric device starts said engine;
- (2) the load is driven by said engine;
- (3) the engine drives said secondary dynamo-electric unit to operate as a generator for driving the primary dynamo-electric unit to drive the load jointly with the engine;
- (4) the engine drives said secondary dynamo-electric unit to operate as a generator for charging said electrical energy storage device;
- (5) the primary dynamo-electric unit is supplied with electricity from said electrical energy storage device to drive said load jointly with said engine.

Serial Number 09/982,178

66. (New) A speed-controlled dynamo-electric compound system as claimed in claim 65, wherein said output device comprises an output transmission mechanism.

67. (New) A speed-controlled dynamo-electric compound system as claimed in claim 66, wherein said output transmission mechanism comprises a transmission selected from the group consisting of a fixed speed ratio transmission, a variable speed ratio transmission, and a planetary transmission.

68. (New) A speed-controlled dynamo-electric compound system as claimed in claim 65, wherein said output device comprises an output clutch.

69. (New) A speed-controlled dynamo-electric compound system as claimed in claim 65, wherein said output device comprises an output transmission mechanism and an output clutch.

70. (New) A speed-controlled dynamo-electric compound system as claimed in claim 65, further comprising a steering shaft connected to said output device, and a differential gear set connected to said steering shaft.

71. (New) A speed-controlled dynamo-electric compound system as claimed in claim 70, further comprising a plurality of differential steering shafts connected to said differential gear set.

72. (New) A speed-controlled dynamo-electric compound system as claimed in claim 65, further comprising a transmission mechanism connected between said centrifugal clutch and said engine.

73. (New) A speed-controlled dynamo-electric compound system as claimed in claim 65, wherein said transmission mechanism connected between said centrifugal clutch and said engine is a transmission selected from the group consisting of a fixed speed ratio transmission, a variable speed ratio transmission, a variable steering transmission, a multistage variable transmission, and a stageless variable transmission.

Serial Number 09/982,178

74. (New) A speed-controlled dynamo-electric compound system as claimed in claim 65, wherein said controller includes a central control unit, a drive control device connected to said primary and secondary dynamo-electric units, and a manual control interface, said drive control device being arranged to control a speed of said primary dynamo-electric unit, and further to control whether said primary and secondary dynamo-electric units function as motors, generators, or one of each.

75. (New) A speed-controlled dynamo-electric compound system as claimed in claim 65, wherein said engine is an internal combustion engine.

76. (New) A speed-controlled dynamo-electric compound system as claimed in claim 75, wherein said engine further includes start-up and operation speed control devices.

77. (New) A speed-controlled dynamo-electric compound system as claimed in claim 65, wherein said engine further includes peripheral interface devices including a fuel system, air inlet and exhaust system, an ignition system, and a cooling system.

78. (New) A speed-controlled dynamo-electric compound system as claimed in claim 65, wherein said primary dynamo-electric unit has a characteristic that a speed of said primary dynamo-electric unit becomes higher when a load becomes smaller.

79. (New) A speed-controlled dynamo-electric compound system as claimed in claim 65, wherein said primary dynamo-electric unit is arranged to execute amperage control of input electric energy to generate kinetic energy of rotation that increases torque as the load increases.

80  
79. (New) A speed-controlled dynamo-electric compound system as claimed in claim 65, wherein said primary dynamo-electric unit is selected from the group consisting of an AC, DC, brush, brushless, synchronous, asynchronous, inner rotor, and outer rotator motor/generator.

Serial Number 09/982,178

81

80. (New) A speed-controlled dynamo-electric compound system as claimed in claim 65, wherein said secondary dynamo-electric unit is selected from the group consisting of an AC, DC, brush, brushless, synchronous, asynchronous, inner rotor, and outer rotator motor/generator.

82

81. (New) A speed-controlled dynamo-electric compound system as claimed in claim 65, wherein said secondary dynamo-electric unit is a starter motor for said engine.

83

82. (New) A speed-controlled dynamo-electric compound system as claimed in claim 65, further comprising a transmission mechanism for connecting said primary dynamo-electric unit to said shaft.

84

83. (New) A speed-controlled dynamo-electric compound system as claimed in claim 82, wherein said transmission mechanism connected between said primary dynamo-electric unit and said shaft is a transmission selected from the group consisting of a fixed speed ratio transmission, a variable speed ratio transmission, a variable steering transmission, a multistage variable transmission, and a stageless variable transmission.

85

84. (New) A speed-controlled dynamo-electric compound system as claimed in claim 82, wherein said output device comprises an output transmission mechanism connected between said shaft and said load.

86

85. (New) A speed-controlled dynamo-electric compound system as claimed in claim 84, wherein said output transmission mechanism comprises a transmission selected from the group consisting of a fixed speed ratio transmission, a variable speed ratio transmission, and a planetary transmission.

87

86. (New) A speed-controlled dynamo-electric compound system as claimed in claim 82, wherein said output device comprises an output clutch.

<sup>88</sup>  
~~87~~. (New) A speed-controlled dynamo-electric compound system as claimed in claim <sup>83</sup>~~82~~, wherein said output device comprises an output transmission mechanism and an output clutch.

<sup>89</sup>  
~~88~~. (New) A speed-controlled dynamo-electric compound system as claimed in claim 65, further comprising a transmission mechanism for connecting said engine to said secondary dynamo-electric unit.

<sup>90</sup>  
~~89~~. (New) A speed-controlled dynamo-electric compound system as claimed in claim <sup>89</sup>~~88~~, wherein said transmission mechanism for connecting said engine to said secondary dynamo-electric unit is a transmission selected from the group consisting of a fixed speed ratio transmission, a variable speed ratio transmission, a variable steering transmission, a multistage variable transmission, and a stageless variable transmission.

<sup>91</sup>  
~~90~~. (New) A speed-controlled dynamo-electric compound system as claimed in claim <sup>89</sup>~~88~~, further comprising a transmission mechanism connected between said centrifugal clutch and said engine.

<sup>92</sup>  
~~91~~. (New) A speed-controlled dynamo-electric compound system as claimed in claim <sup>91</sup>~~90~~, wherein said transmission mechanism connected between said centrifugal clutch and said engine is a transmission selected from the group consisting of a fixed speed ratio transmission, a variable speed ratio transmission, a variable steering transmission, a multistage variable transmission, and a stageless variable transmission.


<sup>93</sup>  
~~92~~. (New) A speed-controlled dynamo-electric compound system as claimed in claim 65, wherein said system carries out each of said functions in response to manual input to said controller.

<sup>94</sup>  
~~93~~. (New) A speed-controlled dynamo-electric compound system as claimed in claim 65, further comprising a second centrifugal clutch arranged to disengage said load when said first centrifugal

Serial Number 09/982,178

clutch transmits power from said primary dynamo-electric device to said engine and a speed of said engine is below a preset value.

<sup>95</sup>  
~~93~~. (New) A speed-controlled dynamo-electric compound system as claimed in claim <sup>93</sup>~~92~~, wherein said first and second centrifugal clutches form a three-layer structure including an inner layer, and intermediate layer, and an outer layer, and wherein said intermediate layer is connected to said engine and said inner layer is connected to said shaft, said inner layer expanding outwardly to engage said intermediate layer when said primary dynamo-electric unit exceeds said preset speed, and said intermediate layer acting outwardly to engage and inner surface of said outer layer when a speed of said engine exceeds said preset value.

<sup>96</sup>  
~~94~~. (New) A speed-controlled dynamo-electric compound system as claimed in claim <sup>95</sup>~~93~~, further comprising a transmission mechanism connected between said engine and said intermediate layer.

<sup>97</sup>  
~~95~~. (New) A speed-controlled dynamo-electric compound system as claimed in claim <sup>95</sup>~~93~~, further comprising a transmission mechanism connected between said outer layer and said primary dynamo-electric unit.

<sup>98</sup>  
~~96~~. (New) A speed-controlled dynamo-electric compound system as claimed in claim <sup>97</sup>~~95~~, further comprising an output clutch connected between said outer layer and said shaft.

<sup>99</sup>  
~~97~~. (New) A speed-controlled dynamo-electric compound system as claimed in claim <sup>98</sup>~~96~~, wherein said output clutch is selected from the group consisting of clutches controlled by manual, mechanical, electromagnetic, hydraulic, and centrifugal force.

<sup>100</sup>  
~~98~~. (New) A speed-controlled dynamo-electric compound system as claimed in claim <sup>99</sup>~~97~~, further comprising a second output clutch connected between said shaft and said load.

Serial Number 09/982,178

<sup>101</sup>  
~~99~~. (New) A speed-controlled dynamo-electric compound system as claimed in claim <sup>100</sup>~~98~~, wherein said second output clutch is selected from the group consisting of clutches controlled by mechanical, manual, electromechanical, hydraulic, and centrifugal force.

<sup>102</sup>  
~~100~~. (New) A speed-controlled dynamo-electric compound system as claimed in claim 65, further comprising an output clutch connected between the driven said of said centrifugal clutch and said load.

<sup>103</sup>  
~~101~~. (New) A speed-controlled dynamo-electric compound system as claimed in claim 65, further comprising a second centrifugal clutch, wherein said first and second centrifugal clutches form a three-layer structure including an inner layer, and intermediate layer, and an outer layer, and wherein said intermediate layer is connected to said shaft and said inner layer is connected to said engine, said inner layer expanding outwardly to engage said intermediate layer when a speed of said engine exceeds said preset value, and said intermediate layer acting outwardly to engage and inner surface of said outer layer when said primary dynamo-electric unit exceeds said preset speed.

<sup>104</sup>  
~~102~~. (New) A speed-controlled dynamo-electric compound system as claimed in claim <sup>103</sup>~~101~~, further comprising a transmission mechanism connected between said engine and said inner layer.

<sup>105</sup>  
~~103~~. (New) A speed-controlled dynamo-electric compound system as claimed in claim <sup>103</sup>~~101~~, further comprising a clutch connected between said outer layer and said engine, said outer and inner layers being fixed to each other.

<sup>106</sup>  
~~104~~. (New) A speed-controlled dynamo-electric compound system as claimed in claim <sup>105</sup>~~103~~, wherein said output clutch is selected from the group consisting of clutches controlled by manual, mechanical, electromagnetic, hydraulic, and centrifugal force.

Serial Number 09/982,178

107

~~105.~~ (New) A speed-controlled dynamo-electric compound system as claimed in claim 65, wherein said first and second centrifugal clutches are independent structures connected by a transmission mechanism.

108

~~106.~~ (New) A speed-controlled dynamo-electric compound system, comprising:

at least one primary dynamo-electric unit arranged to rotate a shaft;

at least one centrifugal clutch having a driven side connected to the shaft and a driving side connected to an engine, wherein rotation of said dynamo-electric unit at a preset speed causes said driven side of the clutch to engage said driving side and thereby connect said engine to said shaft;

a load connected to said shaft through an output device;

a plurality of secondary dynamo-electric units connected to said output device;

an electrical energy storage device connected to said primary dynamo-electric unit; and  
a controller,

wherein when said primary dynamo-electric unit is supplied with electricity from said electrical energy storage device and caused to rotate at below said preset speed, said dynamo-electric device drives said shaft to selectively drive said output device, and when said primary dynamo-electric unit is caused to rotate at above said preset speed, said driven side of said centrifugal clutch engages said driving side, thereby connecting said engine to said primary dynamo-electric unit to carry out at least one of the following functions:

- (1) the primary dynamo-electric device starts said engine;
- (2) the load is driven by said engine;
- (3) the engine drives said secondary dynamo-electric units to operate as a generator for driving the primary dynamo-electric unit to drive the load jointly with the engine;
- (4) the engine drives said secondary dynamo-electric units to operate as a generator for charging said electrical energy storage device;
- (5) the primary dynamo-electric unit is supplied with electricity from said electrical energy storage device to drive said load jointly with said engine.



Serial Number 09/982,178

<sup>109</sup>  
~~107~~. (New) A speed-controlled dynamo-electric compound system as claimed in claim ~~106~~<sup>108</sup>, wherein said output device comprises an output transmission mechanism.

<sup>110</sup>  
~~108~~. (New) A speed-controlled dynamo-electric compound system as claimed in claim ~~106~~<sup>108</sup>, wherein said output device comprises an output clutch.

<sup>111</sup>  
~~109~~. (New) A speed-controlled dynamo-electric compound system as claimed in claim ~~106~~<sup>108</sup>, wherein said output device comprises an output transmission mechanism and an output clutch.

<sup>112</sup>  
~~110~~. (New) A speed-controlled dynamo-electric compound system as claimed in claim ~~106~~<sup>108</sup>, further comprising a steering shaft connected to said output device, and a differential gear set connected to said steering shaft.

<sup>113</sup>  
~~111~~. (New) A speed-controlled dynamo-electric compound system as claimed in claim ~~110~~<sup>112</sup>, further comprising a plurality of differential steering shafts connected to said differential gear set.

<sup>114</sup>  
~~112~~. (New) A speed-controlled dynamo-electric compound system as claimed in claim ~~111~~<sup>113</sup>, wherein said secondary electrical generators are connected to said differential steering shafts

<sup>115</sup>  
~~113~~. (New) A speed-controlled dynamo-electric compound system as claimed in claim ~~106~~<sup>108</sup>, further comprising a transmission mechanism connected between said centrifugal clutch and said engine.

<sup>116</sup>  
~~114~~. (New) A speed-controlled dynamo-electric compound system as claimed in claim ~~106~~<sup>108</sup>, wherein said controller includes a central control unit, a drive control device connected to said primary and secondary dynamo-electric units, and a manual control interface, said drive control device being arranged to control a speed of said primary dynamo-electric unit, and further to

Serial Number 09/982,178

control whether said primary and secondary dynamo-electric units function as motors, generators, or one of each.

<sup>117</sup>  
~~115~~. (New) A speed-controlled dynamo-electric compound system as claimed in claim <sup>108</sup>~~106~~, further comprising a transmission mechanism for connecting said primary dynamo-electric unit to said shaft.

<sup>118</sup>  
~~116~~. (New) A speed-controlled dynamo-electric compound system as claimed in claim <sup>108</sup>~~106~~, further comprising a transmission mechanism for connecting said engine to said secondary dynamo-electric unit.

<sup>119</sup>  
~~117~~. (New) A speed-controlled dynamo-electric compound system as claimed in claim <sup>118</sup>~~116~~, further comprising a transmission mechanism connected between said centrifugal clutch and said engine.

<sup>120</sup>  
~~118~~. (New) A speed-controlled dynamo-electric compound system as claimed in claim <sup>108</sup>~~106~~, wherein said system carries out each of said functions in response to manual input to said controller.

<sup>121</sup>  
~~119~~. (New) A speed-controlled dynamo-electric compound system as claimed in claim <sup>108</sup>~~106~~, further comprising a second centrifugal clutch arranged to disengage said load when said first centrifugal clutch transmits power from said primary dynamo-electric device to said engine and a speed of said engine is below a preset value.

<sup>122</sup>  
~~120~~. (New) A speed-controlled dynamo-electric compound system as claimed in claim <sup>121</sup>~~119~~, wherein said first and second centrifugal clutches form a three-layer structure including an inner layer, and intermediate layer, and an outer layer, and wherein said intermediate layer is connected to said engine and said inner layer is connected to said shaft, said inner layer expanding outwardly to engage said intermediate layer when said primary dynamo-electric unit exceeds said

preset speed, and said intermediate layer acting outwardly to engage and inner surface of said outer layer when a speed of said engine exceeds said preset value.

<sup>123</sup>  
~~121~~. (New) A speed-controlled dynamo-electric compound system as claimed in claim <sup>122</sup>~~120~~, further comprising a transmission mechanism connected between said engine and said intermediate layer.

<sup>124</sup>  
~~122~~. (New) A speed-controlled dynamo-electric compound system as claimed in claim <sup>122</sup>~~120~~, further comprising a transmission mechanism connected between said outer layer and said primary dynamo-electric unit.


<sup>125</sup>  
~~123~~. (New) A speed-controlled dynamo-electric compound system as claimed in claim <sup>124</sup>~~122~~, further comprising an output clutch connected between said outer layer and said shaft.

<sup>126</sup>  
~~124~~. (New) A speed-controlled dynamo-electric compound system as claimed in claim <sup>125</sup>~~123~~, further comprising a second output clutch connected between said shaft and said load.

<sup>127</sup>  
~~125~~. (New) A speed-controlled dynamo-electric compound system as claimed in claim <sup>128</sup>~~126~~, further comprising an output clutch connected between the driven said of said centrifugal clutch and said load.

<sup>128</sup>  
~~126~~. (New) A speed-controlled dynamo-electric compound system as claimed in claim <sup>128</sup>~~126~~, further comprising a second centrifugal clutch, wherein said first and second centrifugal clutches form a three-layer structure including an inner layer, and intermediate layer, and an outer layer, and wherein said intermediate layer is connected to said shaft and said inner layer is connected to said engine, said inner layer expanding outwardly to engage said intermediate layer when a speed of said engine exceeds said preset value, and said intermediate layer acting outwardly to engage and inner surface of said outer layer when said primary dynamo-electric unit exceeds said preset speed.

Serial Number 09/982,178

 <sup>129</sup>  
~~127~~. (New) A speed-controlled dynamo-electric compound system as claimed in claim <sup>128</sup>~~126~~,  
further comprising a transmission mechanism connected between said engine and said inner  
layer.

<sup>130</sup>  
~~128~~. (New) A speed-controlled dynamo-electric compound system as claimed in claim <sup>128</sup>~~126~~,  
further comprising a clutch connected between said outer layer and said engine, said outer and  
inner layers being fixed to each other.

---